

SEQUENCE LISTING

<110> Heim, Ute
Herbers, Karin
Kunze, Irene

<120> EXPRESSION CASSETTES FOR THE BI-DIRECTIONAL TRANSGENIC EXPRESSION
OF NUCLEIC ACIDS IN PLANTS

<130> 13173-00022-US

<150> PCT/EP2004/007255

<151> 2004-07-03

<150> DE 103 33 479.3

<151> 2003-07-22

<160> 6

<170> PatentIn version 3.1

<210> 1

<211> 429

<212> DNA

<213> Arabidopsis thaliana

<220>

<221> promoter

<222> (1)..(429)

<223> promoter

<400> 1

gtatggaata aaatcttcga atgatgagat atatgatctc tttggtgtca gtcacatggc	60
acacgctatc aatttagaaa aacgcggtgg ttggtcacca gaattactac ttctcgggtct	120
gatttggtca tatccgtatt aagtccggtt aatattttcc ataactgggg tttgaacatt	180
cggtttcttt ttttcagtta gtccgatttg gagttttgag tatggaaaaa taatactgaa	240
tttatttggt caaactgttt tggaaaaaat atttccctta attacgaata taattaaaaat	300
tttaaaattc attttattag atcttggtta attcgggtta atgcattaat gaatttcgggt	360
ttaagtcggt tttcgggttt tatgtcccac cactatctac aaccgatgat caaccttctc	420
tccgtattc	429

<210> 2

<211> 836

<212> DNA

<213> Arabidopsis thaliana

<220>

<221> promoter

<222> (344)..(772)

<223> promoter

<220>

<221> Intron

<222> (14)..(281)

<223> 1st intron of OASTL gene

<220>

<221> 5'UTR

<222> (773)..(836)

<223> 5'UTR of FD gene

<220>

<221> 5'UTR

<222> (1)..(343)

<223> 5'-UTR of OASTL gene comprising intron

<400> 2

gatccaagct	tcactgctta	aattcacaaa	aagagaaaag	taagaccaa	ggaataaatc	60
atcctcaaac	caaaaacaca	tcatacaaaa	tcatacaaaa	ttaaatacca	gatgtatgag	120
caccaatcca	gttatacaac	actcttaaca	ccaaatcaac	agatttaaca	gcgaaataag	180
cttaagccca	tacaattatc	cgatccaaac	aaatataatc	gaaaccggca	gaggaataag	240
caagtgaatc	aaaaagtatg	ggacgaggaa	gaagatgata	cctgaatgag	aaagtcaata	300
accttgaccc	gaatcgtttt	gaagaaaatg	gagaaaatcg	gttgtatgga	ataaaatctt	360
cgaatgatga	gatatatgat	ctctttgggt	tcagtcacat	ggcacacgct	atcaatttag	420
aaaaacgcgg	tggttgggtc	ccagaattac	tacttctcgg	tctgatttgg	tcatatccgt	480
attaagtcgg	gttaatatct	tccataactg	gggtttgaac	attcggtttc	tttttttcag	540
ttagtccgat	ttggagtgtt	gagtatggaa	aaataatact	gaatttatct	gttcaaactg	600
ttttggaaaa	aatatttccc	ttaattacga	atataattaa	aatttttaaa	ttcattttat	660
tagatcttgg	ttaattcggg	ttaatgcatt	aatgaatttc	ggtttaagtc	ggttttcggg	720
ttttatgtcc	caccactatc	tacaaccgat	gatcaacctt	atctccgtat	tcaccacaaa	780
cagtcatcac	tctcacttga	cacaaaaact	cttttgtctc	cgtctctctg	tctctc	836

<210> 3

<211> 11533

<212> DNA

<213> Artificial Sequence

<220>

<223> Expression vector UH200

<400> 3

ttccatggac	atacaaatgg	acgaacggat	aaaccttttc	acgccctttt	aaatatccga	60
ttatttctaat	aaacgctctt	ttctcttagg	tttaccgcgc	aatatatcct	gtcaaacact	120
gatagtttaa	actgaaggcg	ggaaacgaca	atcagatcta	gtaggaaaca	gctatgacca	180
tgattacgcc	aagcttgcat	gccgatcccc	cccactccgc	cctacactcg	tatatatatg	240
cctaaacctg	ccccgttcct	catatgtgat	attattattt	cattattagg	tataagatag	300
taaacgataa	ggaaagacaa	tttattgaga	aagccatgct	aaaatataga	tagatatacc	360
ttagcagggt	tttattttac	aacataacat	aacatagtag	ctagccagca	ggcaggctaa	420
aacatagtat	agtctatctg	caggggggtac	ggtcgactct	agactagtgg	atccgtcgaa	480
gctagcttgg	gtcccgtctc	gaagaactcg	tcaagaaggc	gatagaaggc	gatgcgctgc	540
gaatcgggag	cggcgatacc	gtaaagcacg	aggaagcggg	cagcccattc	gccgccaagc	600
tcttcagcaa	tatcacgggt	agccaacgct	atgtcctgat	agcgggtccg	cacaccacag	660
cggccacagt	cgatgaatcc	agaaaagcgg	ccattttcca	ccatgatatt	cggcaagcag	720
gcacgcctat	gggtcacgac	gagatcctcg	ccgtcgggca	tgcgcgctt	gagcctggcg	780
aacagttcgg	ctggcgcgag	cccctgatgc	tcttcgtcca	gatcatcctg	atcgacaaga	840
ccgggttcca	tccgagtacg	tgctcgctcg	atgcgatggt	tcgcttggtg	gtcgaattggg	900
caggtatccg	gatcaagcgt	atgcagcgcg	cgcattgcat	cagccatgat	ggatactttc	960
tcggcaggag	caaggtgaga	tgacaggaga	tcctgccccg	gcacttcgcc	caatagcagc	1020
cagtcccttc	ccgttctcag	gacaacgtcg	agcacagctg	cgcaaggaa	gcccgtcgtg	1080
gccagccacg	atagccgcgc	tgctcgtctc	tgcatgtcat	tcagggcacc	ggacaggctg	1140
gtcttgacaa	aaagaaccgg	gcgcccctgc	gctgacagcc	ggaacacggc	ggcatcagag	1200
cagccgattg	tctgttgtgc	ccagtcatag	ccgaatagcc	tctccaccca	agcggccgga	1260
gaacctgcgt	gcaatccatc	ttgttcaatc	caagctccca	tgggcccctg	actagagtcg	1320
agatccgata	tcgcccgggc	tcgactctag	aggatccaag	cttactgct	taaattcaca	1380
aaaagagaaa	agtaagacca	aaggaataaa	tcatacctcaa	acaaaaaaca	catcatacaa	1440

aatcatcaaa	cataaatctc	cagatgtatg	agcaccaatc	cagttataca	acactcttaa	1500
caccaaataca	acagatttaa	cagcgaaata	agcttaagcc	catacaatta	tccgatccaa	1560
acaaatataa	tcgaaaccgg	cagaggaata	agcaagtga	tcaaaaagta	tgggacgagg	1620
aagaagatga	tacctgaatg	agaaagtcaa	taaccttgac	ccgaatcggt	ttgaagaaaa	1680
tggagaaaat	cgggtgtatg	gaataaaaatc	ttcgaatgat	gagatatatg	atctcttttg	1740
tgtcagtcac	atggcacacg	ctatcaatctt	agaaaaacgc	ggtgggttgg	caccagaatt	1800
actacttctc	ggtctgattt	ggtcatatcc	gtattaagtc	cggttaatat	ttcccataac	1860
tggggtttga	acattcgggt	tctttttttc	agttagtcgc	atttggagtt	ttgagtatgg	1920
aaaaataata	ctgaatttat	ttgttcaaac	tgttttggaa	aaaatatttc	ccttaattac	1980
gaatataaatt	aaaattttta	aattcatttt	attagatctt	ggttaattcg	gtttaatgca	2040
ttaatgaatt	tcggttttaag	tcgggttttcg	gtttttatgt	cccaccacta	tctacaaccg	2100
atgatcaacc	ttatctccgt	attcaccaca	aacagtcac	actctcactt	gacacaaaaa	2160
ctcttttgtc	tccgtctctc	tgtctctcgg	atccccgggt	aggtcagtcc	cttatgttac	2220
gtcctgtaga	aaccccaacc	cgtgaaatca	aaaaactcga	cggcctgtgg	gcattcagtc	2280
tggatcgca	aaactgtgga	attgggtcagc	gttgggtgga	aagcgcgtta	caagaaagcc	2340
gggcaattgc	tgtgccagga	gtttttaacg	atcaagttcg	ccgatgccag	atattcgtaa	2400
ttatgccggc	aacgtcttgg	tatcagcgcc	gaagtcttta	ttccgaaagg	ttgggcaggc	2460
cagcgtatcg	tgctgcgttt	cgatgcggtc	actcattacg	gcaaagtgtg	ggtcaataat	2520
caggaagtga	tggagcatca	gggcggctat	acgccatttg	aagccgatgt	cacgccgat	2580
gttattgccg	ggaaaagtgt	acgtaagttt	ctgcttctac	ctttgatata	tatataataa	2640
ttatcattaa	ttagtagtaa	tataatattt	caaataattt	tttcaaaaata	aaagaatgta	2700
gtatatagca	attgcttttc	tgtagtttat	aagtgtgtat	attttaattt	ataacttttc	2760
taatatatga	ccaaaatttg	ttgatgtgca	ggtatcaccc	tttgtgtgaa	caacgaactg	2820
aactggcaga	ctatcccggc	gggaatggtg	attaccgacg	aaaacggcaa	gaaaaagcag	2880
tcttacttcc	atgatttctt	taactatgcc	ggaatccatc	gcagcgtaat	gctctacacc	2940
acgccgaaca	cctgggtgga	cgatatcacc	gtggtgacgc	atgtcgcgca	agactgtaac	3000
cacgcgtctg	ttgactggca	ggtgggtggc	aatggtgatg	tcagcgttga	actgcgtgat	3060
gcgatcaac	agggtggtgc	aactggacaa	ggcactagcg	ggactttgca	agtgggtaat	3120
ccgcacctct	ggcaaccggg	tgaaggttat	ctctatgaac	tgtgcgtcac	agccaaaagc	3180
cagacagagt	gtgatatcta	cccgcctcgc	gtcggcatcc	ggtcagtggc	agtgaagggc	3240
gaacagttcc	tgattaacca	caaaccgttc	tactttactg	gctttggtcg	tcatgaagat	3300
gcggacttac	gtggcaaagg	attcgataac	gtgctgatgg	tgcacgacca	cgcattaatg	3360
gactggattg	gggccaactc	ctaccgtacc	tcgcattacc	cttacgctga	agagatgctc	3420
gactgggcag	atgaacatgg	catcggtggt	attgatgaaa	ctgctgctgt	cggctttaac	3480
ctctctttag	gcattggttt	cgaagcgggc	aacaagccga	aagaactgta	cagcgaagag	3540
gcagtcaacg	gggaaactca	gcaagcgac	ttacaggcga	ttaaagagct	gatagcgcgt	3600
gacaaaaacc	acccaagcgt	ggtgatgtgg	agtattgcc	acgaaccgga	taccgcgccg	3660
caagtgcacg	ggaatatttc	gccactggcg	gaagcaacgc	gtaaactcga	cccgcgcgt	3720
ccgatcacct	gcgtcaatgt	aatgttctgc	gacgctcaca	ccgataccat	cagcgatctc	3780
tttgatgtgc	tgtgcctgaa	ccgttattac	ggatggtatg	tccaaagcgg	cgatttgga	3840
acggcagaga	aggacttgg	aaaagaactt	ctggcctggc	aggagaaact	gcacagccg	3900
attatcatca	ccgaatacgg	cgtggatacg	ttagccgggc	tgcactcaat	gtacaccgac	3960
atgtggagtg	aagagtatca	gtgtgcatgg	ctggatatgt	atcaccgcgt	ctttgatcgc	4020
gtcagcgcg	tcgtcggtga	acaggtatgg	aatttcgcgc	attttgcgac	ctcgcgaaggc	4080
atattgcgcg	ttggcggtaa	caagaaaggg	atcttcactc	gcgaccgcaa	accgaagtcg	4140
gcggcttttc	tgtgcaaaa	acgctggact	ggcatgaact	tcggtgaaaa	accgcagcag	4200
ggaggcaaac	aatgaatcaa	caactctcct	ggcgaccat	cgtcggctac	agcctcggga	4260
attgctaccg	agctcggtag	ccggcgcaaa	aatcaccagt	ctctctctac	aaatctatct	4320
ctctctatct	ttctccagaa	taatgtgtga	gtagttccca	gataagggaa	ttagggttct	4380
tatagggttt	cgctcatgtg	ttgagcatat	aagaaaccct	tagtatgtat	ttgtatttgt	4440
aaaatacttc	tatcaataaa	atttctaatt	cctaaaacca	aaatccagt	accgggtacc	4500
gagctcgaat	tactggccg	tcgttttaca	acgactcagc	agcttgacag	gaggcccgat	4560
ctagtaacat	agatgacacc	gcgcgcgata	atttatccta	gtttgcgcgc	tatattttgt	4620
tttctatcgc	gtattaaatg	tataattgcg	ggactcta	cataaaaaacc	catctcataa	4680
ataacgtcat	gcattacatg	ttaattatta	catgcttaac	gtaattcaac	agaaattata	4740
tgataatcat	cgcaagaccg	gcaacaggat	tcaatcttaa	gaaactttat	tgccaaatgt	4800
ttgaacgatc	ggggatcatc	cgggtctgtg	gcgggaactc	cacgaaaata	tccgaacgca	4860

gcaagatcgg	tcgatcgact	cagatctggg	taactggcct	aactggcctt	ggaggagctg	4920
gcaactcaaa	atccctttgc	caaaaaccaa	catcatgcc	tccaccatgc	ttgtatccag	4980
ccgcgcgcaa	tgtaccccg	gctgtgtatc	ccaaagcctc	atgcaaccta	acagatggat	5040
cgtttggaag	gcctataaca	gcaaccacag	acttaaaacc	ttgcgcctcc	atagacttaa	5100
gcaaattgtg	gtacaatgta	gatcctaggc	ccaacctttg	atgcctatgt	gacacgtaaa	5160
cagtactctc	aactgtccaa	tcgtaagcgt	tcctagcctt	ccagggccca	gcgtaagcaa	5220
taccagccac	aacaccctca	acctcagcaa	ccaaccaagg	gtatctatct	tgcaacctct	5280
ctaggtcac	aatccactct	tgtgggtgtt	gtggctctgt	cctaaagttc	actgtagacg	5340
tctcaatgta	atgggttaacg	atgtcacaaa	ccgcggccat	atcggtgct	gtagctggcc	5400
taatctcaac	tggctctctc	tccggagaca	tgtcgagatt	atgttgattg	agagtgaata	5460
tgagactcta	attggatacc	gaggggaatt	tatggaacgt	cagtggagca	tttttgacaa	5520
gaaatatttg	ctagctgata	gtgaccttag	gcgacttttg	aacgcgcaat	aatggtttct	5580
gacgtatgtg	cttagctcat	taaactccag	aaaccgcgg	ctgagtggct	ccttcaacgt	5640
tgcggttctg	tcagttccaa	acgtaaaacg	gcttgtcccg	cgatcatcgg	gggggtcata	5700
acgtgactcc	cttaattctc	cgctcatgat	cagattgtcg	tttccgcct	tcagtttaaa	5760
ctatcagtgt	ttgacaggat	cctgcttggt	aataattgtc	attagattgt	ttttatgcat	5820
agatgcactc	gaaatcagcc	aatttttagac	aagtatcaaa	cggatgttaa	ttcagtagat	5880
taaagacgtc	cgcaatgtgt	tattaagttg	tctaagcgtc	aatttgttta	caccacaata	5940
tatcctgcc	ccagccagcc	aacagctccc	cgaccggcag	ctcggcacaa	aatcaccacg	6000
cgttaccacc	acgcggccg	gccgcattgt	gttgaccgtg	ttcgccggca	ttgccgagtt	6060
cgagcgttcc	ctaatactcg	accgcacccg	gagcgggcgc	gaggccgcca	aggcccagag	6120
cgtgaagttt	ggcccccgcc	ctaccctcac	cccggcacag	atcgcgacg	cccgcgagct	6180
gatcgaccag	gaaggccgca	ccgtgaaaga	ggcggctgca	ctgcttggcg	tgcatcgctc	6240
gaccctgtac	cgcgcaactg	agcgacgcga	ggaagtgcag	cccaccgagg	ccaggcggcg	6300
cgggtgcctt	cgtgaggacg	cattgaccga	ggccgacgcc	ctggcggccg	ccgagaatga	6360
acgccaagag	gaacaagcat	gaaaccgcac	caggacggcc	aggacgaacc	gtttttcatt	6420
accgaagaga	tcgaggcgga	gatgatcgcg	gccgggtacg	tggtcgagcc	gcccgcgcac	6480
gtctcaaccg	tgccggtgca	tgaatcctg	gccggtttgt	ctgatgcaa	gctggcggcc	6540
tggccggcca	gcttggccgc	tgaagaaacc	gagcgccgcc	gtctaaaaag	gtgatgtgta	6600
tttgagtaaa	acagcttgcg	tcattgcggtc	gctgcgtata	tgatgcgatg	agtaataaaa	6660
caaatacgca	aggggaacgc	atgaaggtta	tcgctgtact	taaccagaaa	ggcgggtcag	6720
gcaagacgac	catcgcaacc	catctagccc	gcgcctgca	actcgccggg	gccgatgttc	6780
tgttagtcga	ttccgatccc	cagggcagtg	cccgcgattg	ggcggccgtg	cgggaagatc	6840
aaccgctaac	cgttgtcggc	atcgaccgcc	cgacgattga	ccgcgacgtg	aaggccatcg	6900
gccggcgcca	cttcgtagtg	atcgacggag	cgccccaggc	ggcggacttg	gctgtgtccg	6960
cgatcaaggc	agccgacttc	gtgctgattc	cgggtgcagc	aagcccttac	gacatatggg	7020
ccaccgccga	cctggtggag	ctggttaagc	agcgattga	ggtcacggat	ggaaggctac	7080
aagcggcctt	tgtcgtgtcg	cgggcgatca	aaggcacgcg	catcggcggt	gaggttgccg	7140
aggcgtggc	cgggtacgag	ctgcccattc	ttgagtcccg	tatcacgcag	cgcgtgagct	7200
accaggcac	tgccgcgcgc	ggcacaaccg	ttcttgaatc	agaaccgcag	ggcgacgctg	7260
cccgcgaggt	ccaggcgctg	gccgctgaaa	ttaaatcaaa	actcatttga	gttaatgagg	7320
taaagagaaa	atgagcaaaa	gcacaaacac	gctaagtgcc	ggccgtccga	gcgcacgcag	7380
cagcaaggct	gcaacgttgg	ccagcctggc	agacacgcca	gccatgaagc	gggtcaactt	7440
tcagttgccg	gcgaggatc	acaccaagct	gaagatgtac	gcggtacgcc	aaggcaagac	7500
cattaccgag	ctgctatctg	aatacatcgc	gcagctacca	gagtaaata	gcaaatgaat	7560
aaatgagtag	atgaatttta	gcggctaaag	gaggcggcat	ggaaaatcaa	gaacaaccag	7620
gcaccgacgc	cgtggaatgc	cccatgtgtg	gaggaacggg	cggttggcca	ggcgtaagcg	7680
gctgggttgt	ctgccggccc	tgcaatggca	ctggaacccc	caagcccag	gaatcggcgt	7740
gagcggctcg	aaaccatccg	gcccgtgaca	aatcggcgcg	gcgctgggtg	atgacctggt	7800
ggagaagttg	aaggccgcgc	aggccgcccc	gcggcaacgc	atcgaggcag	aagcacgccc	7860
cggtagaatc	tggcaagcgc	ccgctgatcg	aatccgcaaa	gaatcccggc	aaccgcggcg	7920
agccggtgcg	ccgtcgatta	ggaagccgcc	caagggcgac	gagcaaccag	attttttcgt	7980
tccgatgctc	tatgacgtgg	gcacccgcga	tagtcgcagc	atcatggacg	tggccgtttt	8040
ccgtctgtcg	aagcgtgacc	gacgagctgg	cgaggtgatc	cgctacgagc	ttccagacgg	8100
gcacgtagag	gtttccgcag	ggccggccgg	catggccagt	gtgtgggatt	acgacctggt	8160
actgatggcg	gtttcccatc	taaccgaatc	catgaaccga	taccgggaag	ggaagggaga	8220
caagcccggc	cgcgtgttcc	gtccacacgt	tgccgacgta	ctcaagtctt	gccggcgagc	8280

cgatggcgga	aagcagaaaag	acgacctggt	agaaacctgc	attcgggttaa	acaccacgca	8340
cgttgccatg	cagcgtacga	agaaggccaa	gaacggccgc	ctggtgacgg	tatccgaggg	8400
tgaagccttg	attagccgct	acaagatcgt	aaagagcgaa	accgggaggc	cggagtacat	8460
cgagatcgag	ctagctgatt	ggatgtaccg	cgagatcaca	gaaggcaaga	acccggacgt	8520
gctgacgggt	caccccgatt	actttttgat	cgatcccggc	atcggccgtt	ttctctaccg	8580
cctggcacgc	cgcgccgcag	gcaaggcaga	agccagatgg	ttgttcaaga	cgatctacga	8640
acgcagtggc	agcgcgggag	agttcaagaa	gttctgtttc	accgtgcgca	agctgatcgg	8700
gtcaaagtac	ctgccggagt	acgatttgaa	ggaggaggcg	gggcaggctg	gcccgatcct	8760
agtcatgcgc	taccgcaacc	tgatcgaggg	cgaagcatcc	gccggttcct	aatgtacgga	8820
gcagatgcta	gggcaaattg	ccctagcagg	ggaaaaaggt	cgaaaaggtc	tctttcctgt	8880
ggatagcacg	tacattggga	acccaaagcc	gtacattggg	aaccggaacc	cgtacattgg	8940
gaacccaag	ccgtacattg	ggaaccgggt	acacatgtaa	gtgactgata	taaaagagaa	9000
aaaaggcgat	ttttccgcct	aaaactcttt	aaaacttatt	aaaactctta	aaaccgcct	9060
ggcctgtgca	taactgtctg	gccagcgcac	agccgaagag	ctgcaaaaag	cgcctaccct	9120
tcggtcgctg	cgctccctac	gccccgccgc	ttcgcgtcgg	cctatcgcg	ccgctggccg	9180
ctcaaaaatg	gctggcctac	ggccaggcaa	tctaccagg	cgcggaacag	ccgcgccgtc	9240
gccactcgac	cgcggcgccc	cacatcaagg	cacctgcct	cgcgcgtttc	ggtgatgacg	9300
gtgaaaacct	ctgacacatg	cagctcccg	agacggtcac	agcttgtctg	taagcggatg	9360
ccgggagcag	acaagcccgt	cagggcgctg	cagcgggtgt	tggcgggtgt	cggggcgag	9420
ccatgaccca	gtcacgtagc	gatagcggag	tgtatactgg	cttaactatg	cggcatcaga	9480
gcagattgta	ctgagagtgc	accatatgcg	gtgtgaaata	ccgcacagat	gcgtaaggag	9540
aaaataccgc	atcaggcgct	cttcgccttc	ctcgcctact	gactcgctgc	gctcggctcg	9600
tcggctgcgg	cgagcgggat	cagctcactc	aaaggcggtg	atacggttat	ccacagaatc	9660
aggggataac	gcaggaaaga	acatgtgagc	aaaaggccag	caaaaggcca	ggaaccgtaa	9720
aaaggccgcg	ttgctggcgt	ttttccatag	gctccgcccc	cctgacgagc	atcacaaaaa	9780
tcgacgctca	agtacagagg	ggcgaaaccc	gacaggacta	taaagatacc	aggcgtttcc	9840
ccctggaagc	tccctcgtgc	gctctcctgt	tccgacctg	ccgcttaccg	gatacctgtc	9900
cgcctttctc	ccttcgggaa	gcgtggcgct	ttctcatagc	tcacgctgta	ggtatctcag	9960
ttcgggtgtag	gtcgttcgct	ccaagctggg	ctgtgtgcac	gaaccccccg	ttcagcccga	10020
ccgctgcgccc	ttatccggta	actatcgtct	tgagtccaac	ccggtaaagc	acgacttatc	10080
gccactggca	gcagcactcg	gtaacaggat	tagcagagcg	aggtatgtag	gcggtgctac	10140
agagtctctg	aagtgggtggc	ctaactacgg	ctacactaga	aggacagtat	ttggtatctg	10200
cgctctgctg	aagccagtta	ccttcggaaa	aagagttagt	agctcttgat	ccggcaaaac	10260
aaccaccgct	ggtagcgggtg	gtttttttgt	ttgcaagcag	cagattacgc	gcagaaaaaa	10320
aggatctcaa	gaagatcctt	tgatcttttc	tacggggctc	gacgctcagt	ggaacgaaaa	10380
ctcacgttaa	gggatttttg	tcatgcatga	tatatctccc	aatttggtga	gggcttatta	10440
tgcacgctta	aaaataataa	aagcagactt	gacctgatag	tttggctgtg	agcaattatg	10500
tgcttagtgc	atctaacgct	tgagttaagc	cgcgccgcga	agcggcgctc	gcttgaacga	10560
atttctagct	agacattatt	tgccgactac	cttggtgatc	tcgcctttca	cgtagtggac	10620
aaattcttcc	aactgatctg	cgcgcgaggg	caagcgatct	tcttcttgct	caagataagc	10680
ctgtctagct	tcaagtatga	cgggctgata	ctgggcccgg	aggcgctcca	ttgcccagtc	10740
ggcagcgaca	tccttcggcg	cgattttgcc	ggttactgcg	ctgtaccaa	tgcgggacaa	10800
cgtaagcact	acatttcgct	catcgccagc	ccagtcgggc	ggcgagttcc	atagcgttaa	10860
ggtttcattt	agcgcctcaa	atagatcctg	ttcaggaacc	ggatcaaaga	gttcctccgc	10920
cgctggacct	accaaggcaa	cgctatgttc	tcttgctttt	gtcagcaaga	tagccagatc	10980
aatgtcgatc	gtggctggct	cgaagatacc	tgcaagaatg	tcattgcgct	gccattctcc	11040
aaattgcagt	tcgcgcttag	ctggataacg	ccacggaatg	atgtcgtcgt	gcacaacaat	11100
ggtgacttct	acagcgcgga	gaatctcgct	ctctccaggg	gaagccgaag	tttccaaaaa	11160
gtcgttgatc	aaagctcgcc	gcgttggttc	atcaagcctt	acggtcaccg	taaccagcaa	11220
atcaatatca	ctgtgtggct	tcaggccgcc	atccactcgc	gagccgtaca	aatgtacggc	11280
cagcaacgct	ggttcgagat	ggcgctcgat	gacgccaaact	acctctgata	gttgagtcga	11340
tacttcggcg	atcacgcctt	ccccatgat	gtttaacttt	gttttagggc	gactgccctg	11400
ctgcgtaaca	tcgttgctgc	tccataacat	caaacatcga	cccacggcgt	aacgcgcttg	11460
ctgcttggat	gcccagggca	tagactgtac	cccaaaaaaa	cagtcataac	aagccatgaa	11520
aaccgccact	gcg					11533

<211> 11533
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Expression vector UH201

<400> 4

ttccatggac	atacaaatgg	acgaacggat	aaaccttttc	acgccctttt	aaatatccga	60
ttatttcta	aaacgctctt	ttctcttagg	tttaccgcc	aatatatcct	gtcaaacact	120
gatagtttaa	actgaaggcg	ggaaacgaca	atcagatcta	gtaggaaaca	gctatgacca	180
tgattacgcc	aagcttgcat	gccgatcccc	cccactccgc	cctacactcg	tatatatatg	240
cctaaacctg	ccccgttcct	catatgtgat	attattattt	cattattagg	tataagatag	300
taaacgataa	ggaaagacaa	tttattgaga	aagccatgct	aaaatataga	tagatatacc	360
ttagcagggt	tttattttac	aacataacat	aacatagtag	ctagccagca	ggcaggctaa	420
aacatagtat	agtctatctg	caggggggtac	ggctgactct	agactagtgg	atccgtcgaa	480
gctagcttgg	gtcccgtcga	gaagaactcg	tcaagaaggc	gatagaaggc	gatgcgctgc	540
gaatcgggag	cggcgatacc	gtaaagcacg	aggaagcggg	cagcccatc	gccgccaagc	600
tcttcagcaa	tatcacgggt	agccaacgct	atgtcctgat	agcgggccgc	cacaccagc	660
cggccacagt	cgatgaatcc	agaaaagcgg	ccattttcca	ccatgatatt	cggcaagcag	720
gcatcgccat	gggtcacgac	gagatcctcg	ccgtcgggca	tgcgcgccct	gagcctggcg	780
aacagttcgg	ctggcgcgag	cccctgatgc	tcttcgtcca	gatcatcctg	atcgacaaga	840
ccggcttcca	tccgagtacg	tgctcgctcg	atgcgatgtt	tcgcttgggt	gtcgaatggg	900
caggtagccg	gatcaagcgt	atgcagccgc	cgcattgcat	cagccatgat	ggatactttc	960
tcggcaggag	caaggtgaga	tgacaggaga	tcctgccccg	gcacttcgcc	caatagcagc	1020
cagtcccttc	ccgcttcagt	gacaacgtcg	agcacagctg	cgcaaggaa	gcccgctcgt	1080
gccagccacg	atagccgcgc	tgctcgtcc	tgcatgtcat	tcagggcacc	ggacaggctc	1140
gtcttgacaa	aaagaaccgg	gcgcccctgc	gctgacagcc	ggaacacggc	ggcatcagag	1200
cagccgattg	tctgtttgtc	ccagtcctag	ccgaatagcc	tctccacca	agcggccgga	1260
gaacctgcgt	gcaatccatc	ttgttcaatc	caagctccca	tgggcccctc	actagagtcg	1320
agatccgata	tcgcccgggc	tcgactctag	aggatccaag	cttcactgct	taaattcaca	1380
aaaagagaaa	agtaagacca	aaggaataaa	tcactcctca	acaaaaaaca	catcatacaa	1440
aatcatcaaa	cataaatctc	cagatgtatg	agcaccaatc	cagttataca	acactcttaa	1500
caccaaatac	acagatttaa	cagcgaaata	agcttaagcc	catacaatta	tccgatccaa	1560
acaaatataa	tcgaaaccgg	cagaggaata	agcaagtga	tcaaaaagta	tgggacgagg	1620
aagaagatga	tacctgaatg	agaaagtcaa	taaccttgac	ccgaatcgtt	ttgaagaaaa	1680
tggagaaaat	cggttgatg	gaataaaatc	ttcgaatgat	gagatatatg	atctcttttg	1740
tgtcagtcac	atggcacacg	ctatcaatct	agaaaaacgc	gggtggttgg	caccagaatt	1800
actacttctc	ggcttgattt	ggatcatatc	gtattaagtc	cggttaatat	ttcccataac	1860
tggggtttga	acattcgggt	tctttttttc	agttagtccg	atgttgagtt	ttgagtatgg	1920
aaaaataata	ctgaatttat	ttgttcaaac	tgttttggaa	aaaatatttc	ccttaattac	1980
gaatataatt	aaaattttta	aattcatttt	attagatctt	ggttaattcg	gtttaatgca	2040
ttaatgaatt	tcggttttaag	tcggtttttc	gtttttatgt	cccaccacta	tctacaaccg	2100
atgatcaacc	ttatctccgt	attcaccaca	aacagtcatc	actctcactt	gacacaaaaa	2160
ctcttttgtc	tccgtctctc	tgtctctcgg	atccccgggt	aggtcagtc	cttatgttac	2220
gtcctgtaga	aaccccaacc	cgtgaaatca	aaaaactcga	cggcctgtgg	gcattcagtc	2280
tggatcgcg	aaactgtgga	attggtcagc	gttgggtgga	aagcgcgtta	caagaaagcc	2340
gggcaattgc	tgtgccagga	gttttttaac	atcaagttcg	ccgatgccag	atattcgtaa	2400
ttatgccggc	aacgtcttgg	tatcagcgcc	gaagtcttta	ttccgaaagg	ttgggcaggc	2460
cagcgtatcg	tgctgcgttt	cgatgcggtc	actcattacg	gcaaagtgtg	ggccaataat	2520
caggaagtga	tggagcatca	gggcggctat	acgccatttg	aagccgatgt	cacgccgtat	2580
gttattgccg	ggaaaagtgt	acgtaagttt	ctgcttctac	ctttgatata	tatataataa	2640
ttatcattaa	ttagtagtaa	tataatatct	caaatatatt	tttcaaaaata	aaagaatgta	2700
gtatatagca	attgcttttc	tgtagtttat	aagtgtgtat	atttttaatt	ataacttttc	2760
taatatatga	ccaaaatttg	ttgatgtgca	ggtatcaccg	tttgtgtgaa	caacgaactg	2820
aactggcaga	ctatcccgcc	gggaatgggt	attaccgacg	aaaacggcaa	gaaaaagcag	2880
tcttacttcc	atgatttctt	taactatgcc	ggaatccatc	gcagcgtaat	gctctacacc	2940

acgccgaaca	cctgggtgga	cgatatcacc	gtgggtgacgc	atgtcgcgca	agactgtaac	3000
cacgcgtctg	ttgactggca	ggtgggtggcc	aatgggtgatg	tcagcgttga	actgcgtgat	3060
gcggatcaac	aggtgggttgc	aactggacaa	ggcactagcg	ggacttttgca	agtgggtgaat	3120
ccgcacctct	ggcaaccggg	tgaaggttat	ctctatgaac	tgtgcgtcac	agccaaaagc	3180
cagacagagt	gtgatatcta	cccgtttcgc	gtcggcatcc	ggtcagtggc	agtgaagggc	3240
gaacagttcc	tgattaacca	caaaccgttc	tactttactg	gctttggtcg	tcatgaagat	3300
gcggacttac	gtggcaaagg	attcgataac	gtgctgatgg	tgcacgacca	cgcattaatg	3360
gactggattg	gggccaactc	ctaccgtacc	tcgcattacc	cttacgctga	agagatgctc	3420
gactgggcag	atgaacatgg	catcgtgggtg	attgatgaaa	ctgctgctgt	cggctttaac	3480
ctctctttag	gcattggttt	cgaagcgggc	aacaagccga	aagaactgta	cagcgaagag	3540
gcagtcaacg	gggaaactca	gcaagcgcac	ttacaggcga	ttaaagagct	gatagcgcgt	3600
gacaaaaacc	acccaagcgt	ggtgatgtgg	agtattgcca	acgaaccgga	taccgcgtccg	3660
caagtgcacg	ggaatatttc	gccactggcg	gaagcaacgc	gtaaactcga	cccgcgcgt	3720
ccgatcacct	gcgtcaatgt	aatgtttctgc	gacgctcaca	ccgataccat	cagcgatctc	3780
tttgatgtgc	tgtgcctgaa	ccgttattac	ggatgggtatg	tccaaagcgg	cgatttgga	3840
acggcagaga	aggtactgga	aaaagaactt	ctggcctggc	aggagaaact	gcatcagccg	3900
attatcatca	ccgaatacgg	cgtggatacg	ttagccgggc	tgcactcaat	gtacaccgac	3960
atgtggagtg	aagagtatca	gtgtgcatgg	ctggatatgt	atcaccgcgt	ctttgatcgc	4020
gtcagcgccg	tcgtcgggtga	acaggtatgg	aatttcgcgcg	attttgcgac	ctcgcaaggc	4080
atattgcgcg	ttggcggtaa	caagaaaagg	atcttcactc	gcgaccgcaa	accgaagtcg	4140
gcggcttttc	tgctgcaaaa	acgctggact	ggcatgaact	tcggtgaaaa	accgcagcag	4200
ggaggcaaac	aatgaatcaa	caactctcct	ggcgcaccat	cgtcggctac	agcctcggga	4260
attgctaccg	agctcgggtac	ccggcgcaaa	aatcaccagt	ctctctctac	aaatctatct	4320
ctctctatct	ttctccagaa	taatgtgtga	gtagttccca	gataagggaa	ttagggttct	4380
tatagggttt	cgctcatgtg	ttgagcatat	aagaaaccct	tagtatgtat	ttgtatttgt	4440
aaaatacttc	tatcaataaa	atcttctaatt	cctaaaacca	aaatccagt	accgggtacc	4500
gagctcgaat	tcactggccg	tcgtttttaca	acgactcagc	agcttgacag	gaggcccgat	4560
ctagtaacat	agatgacacc	gcgcgcgata	atcttacctc	gtttgcgcgc	tatattttgt	4620
tttctatcgc	gtattaaatg	tataattgcg	ggactcta	cataaaaacc	catctcataa	4680
ataacgtcat	gcattacatg	ttaattatta	catgcttaac	gtaattcaac	agaaaattata	4740
tgataatcat	cgcaagaccc	gcaacaggat	tcaatcttaa	gaaactttat	tgccaaatgt	4800
ttgaacgatc	ggggctcatc	cgggtctgtg	gcgggaactc	cacgaaaata	tccgaacgca	4860
gcaagatcgg	tcgatcgact	cagatctggg	taactggcct	aactggcctt	ggaggagctg	4920
gcaactcaaa	atccctttgc	caaaaaccaa	catcatgcca	tccaccatgc	ttgtatccag	4980
ccgcgcgcaa	tgtaccccg	gctgtgtatc	ccaaagcctc	atgcaaccta	acagatggat	5040
cgtttggaag	gcctataaca	gcaaccacag	acttaaaacc	ttgcgcctcc	atagacttaa	5100
gcaaatgtgt	gtacaatgta	gatcctaggc	ccaacctttg	atgcctatgt	gacacgtaaa	5160
cagtactctc	aactgtccaa	tcgtaagcgt	tcctagcctt	ccagggccca	gcgtaagcaa	5220
taccagccac	aacaccctca	acctcagcaa	ccaaccaagg	gtatctatct	tgcaacctct	5280
ctaggtcatc	aatccaactct	tgtgggtgtt	gtggctctgt	cctaaagtct	actgtagacg	5340
tctcaatgta	atgggttaacg	atgtcacaaa	ccgcggccat	atcggctgct	gtagctggcc	5400
taatctcaac	tggctctcctc	tccggagaca	tgtcgagatt	atgtggattg	agagtgaata	5460
tgagactcta	attggatacc	gaggggaatt	tatggaacgt	cagtggagca	tttttgacaa	5520
gaaatatttg	ctagctgata	gtgaccttag	gcgacttttg	aacgcgcaat	aatggtttct	5580
gacgtatgtg	cttagctcat	taaactccag	aaaccgcgg	ctgagtggct	ccttcaacgt	5640
tgcggttctg	tcagttccaa	acgtaaaacg	gcttgctccg	cgtcatcggc	gggggtcata	5700
acgtgactcc	cttaattctc	cgtcatgat	cagattgtcg	tttccgcct	tcagtttaaa	5760
ctatcagtg	ttgacaggat	cctgcttgg	aataattgtc	attagattgt	ttttatgcat	5820
agatgcactc	gaaatcagcc	aattttagac	aagtatcaaa	cggatgttaa	ttcagtacat	5880
taaaagacgtc	cgcaatgtgt	tattaagtgt	tctaagcgtc	aatttgttta	caccacaata	5940
tatcctgcc	ccagccagcc	aacagctccc	cgaccggcag	ctcggcacaa	aatcaccacg	6000
cgttaccacc	acgcggccg	gccgcattgt	ggtgaccgtg	ttcgccggca	ttgccgagtt	6060
cgagcgttcc	ctaatactcg	accgcacccg	gagcgggcgc	gaggccgcca	aggcccagag	6120
cgtgaagttt	ggcccccgcc	ctaccctcac	cccggcacag	atcgcgcacg	cccgcgagct	6180
gatcgaccag	gaaggccgca	ccgtgaaaga	ggcggctgca	ctgcttggcg	tgcatcgctc	6240
gaccctgtac	cgcgcacttg	agcgcagcga	ggaagtgcg	cccaccgagg	ccaggcggcg	6300
cggtgccttc	cgtgaggacg	cattgaccga	ggccgacgcc	ctggcggccg	ccgagaatga	6360

acgccaaagag	gaacaagcat	gaaaccgcac	caggacggcc	aggacgaacc	gtttttcatt	6420
accgaagaga	tcgaggcgga	gatgatcgcg	gccgggtacg	tgttcgagcc	gcccgcgcac	6480
gtctcaaccg	tgcggtgca	tgaaatcctg	gccggtttgt	ctgatgcaa	gctggcggcc	6540
tgcccgccca	gcttggccgc	tgaagaaacc	gagcgccgcc	gtctaaaaag	gtgatgtgta	6600
tttgagtaaa	acagcttgcg	tcatgcggtc	gctgcgtata	tgatgcgatg	agtaaatata	6660
caaatacgca	aggggaacgc	atgaaggtta	tcgctgtact	taaccagaaa	ggcgggtcag	6720
gcaagacgac	catcgcaacc	catctagccc	gcgccctgca	actcgccggg	gccgatgttc	6780
tgttagtcga	ttccgatccc	cagggcagtg	cccgcgattg	ggcggccgtg	cgggaagatc	6840
aaccgctaac	cgttgtcggc	atcgaccgcc	cgacgattga	ccgcgacgtg	aaggccatcg	6900
gccggcgcca	cttcgtagt	atcgacggag	cgccccaggc	ggcggacttg	gctgtgtccg	6960
cgatcaaggc	agccgacttc	gtgctgattc	cggtgacgcc	aagcccttac	gacatatggg	7020
ccaccgcccga	cttggtggag	ctggttaagc	agcgcatgta	ggtcacggat	ggaaggctac	7080
aagcgcctct	gttcgtgtcg	cgggcgatca	aaggcacgcg	catcgcggtg	gaggttgccg	7140
aggcgctggc	cgggtacgag	ctgcccattc	ttgagtccc	tatcacgcag	cgcgtgagct	7200
accagggcac	tgccgcccgc	ggcacaaccg	ttcttgaatc	agaaccgcag	ggcgacgctg	7260
cccgcgaggt	ccaggcgctg	gccgctgaaa	ttaaatcaaa	actcatttga	gttaatgagg	7320
taaagagaaa	atgagcaaaa	gcacaaacac	gctaagtgcc	ggccgtccga	gcgcacgcag	7380
cagcaaggct	gcaacgttgg	ccagcctggc	agacacgcca	gccatgaagc	gggtcaactt	7440
tcagttgccg	gcgaggatc	acaccaagct	gaagatgtac	gcggtacgcc	aaggcaagac	7500
cattaccgag	ctgctatctg	aatacatcgc	gcagctacca	gagtaaatga	gcaaatgaat	7560
aaatgagtag	atgaatttta	gcggctaaag	gaggcgcat	ggaaaatcaa	gaacaaccag	7620
gcaccgacgc	cgtggaatgc	cccatgtgtg	gaggaacggg	cggttggcca	ggcgtaagcg	7680
gctgggttgt	ctgccggccc	tgcaatggca	ctggaacccc	caagcccag	gaatcggcgt	7740
gagcggctcg	aaaccatccg	gcccgggtaca	aatcggcgcg	gcgctgggtg	atgacctggt	7800
ggagaagtgt	aaggccgcgc	aggccgcccc	gcggcaacgc	atcgaggcag	aagcacgccc	7860
cgggtgaatcg	tggcaagcgg	ccgctgatcg	aatccgcaaa	gaatcccggc	aaccgcccgc	7920
agccggtgcg	ccgtcgatta	ggaagccgcc	caagggcgac	gagcaaccag	attttttcgt	7980
tccgatgttc	tatgacgtgg	gcaccgcgca	tagtcgcagc	atcatggacg	tgcccgtttt	8040
ccgtctgtcg	aagcgtgacc	gacgagctgg	cgaggtgatc	cgctacgagc	ttccagacgg	8100
gcacgtagag	gtttcccgag	ggccggccgg	catggccagt	gtgtgggatt	acgacctggt	8160
actgatggcg	gtttcccatc	taaccgaatc	taccgggaag	taccgggaag	ggaagggaga	8220
caagcccggc	cgcgtgttcc	gtccacacgt	tgccgacgta	ctcaagttct	gccggcgagc	8280
cgatggcgga	aagcagaaa	acgacctggt	agaaacctgc	attcggttta	acaccacgca	8340
cgttgccatg	cagcgtacga	agaaggccaa	gaacggccgc	ctggtgacgg	tatccgaggg	8400
tgaagccttg	attagccgct	acaagatcgt	aaagagcgaa	accgggcccgc	cggagtacat	8460
cgagatcgag	ctagctgatt	ggatgtaccg	cgagatcaca	gaaggcaaga	acccggacgt	8520
gctgacgggt	caccccgatt	actttttgat	cgatcccggc	atcgcccggt	ttctctaccg	8580
cctggcacgc	cgcgccgcag	gcaaggcaga	agccagatgg	ttgttcaaga	cgatctacga	8640
acgcagtggc	agcgcgggag	agttcaagaa	gttctgtttc	accgtgcgca	agctgatcgg	8700
gtcaaatgac	ctgccggagt	acgatttgaa	ggaggaggcg	gggcaggctg	gcccgatcct	8760
agtcatgcgc	taccgcaacc	tgatcgaggg	cgaagcatcc	gccggttcct	aatgtacgga	8820
gcagatgcta	gggcaaattg	ccctagcagg	ggaaaaaggt	cgaaaaggtc	tcttttcctgt	8880
ggatagcacg	tacattggga	acccaaagcc	gtacattggg	aaccggaacc	cgtacattgg	8940
gaacccaaag	ccgtacattg	ggaaccggtc	acacatgtaa	gtgactgata	taaaagagaa	9000
aaaaggcgat	ttttccgcct	aaaactcttt	aaaacttatt	aaaactctta	aaaccgcct	9060
ggcctgtgca	taactgtctg	gccagcgcac	agccgaagag	ctgcaaaaag	cgcctaccct	9120
tcggtcgctg	cgtccctac	gccccgcgc	ttcgctcg	cctatcgcg	ccgctggccg	9180
ctcaaaaatg	ctgggcctac	ggccaggcaa	tctaccagg	cgcggacaag	ccgcgccgtc	9240
gccactcgac	gcgcggcgcc	cacatcaagg	caccctgcct	cgcgcgtttc	ggtgatgacg	9300
gtgaaaacct	ctgacacatg	cagctcccgg	agacggtcac	agcttgtctg	taagcggatg	9360
ccgggagcag	acaagcccgt	cagggcgctg	cagcgggtgt	tggcgggtgt	cggggcgag	9420
ccatgaccca	gtcacgtagc	gatagcggag	tgtatactgg	cttaactatg	cggcatcaga	9480
gcagattgta	ctgagagtgc	accatatgcg	gtgtgaaata	ccgcacagat	gcgtaaggag	9540
aaaataccgc	atcaggcgct	cttcgccttc	ctcgctcact	gactcgctgc	gctcggctcg	9600
tcggctgcgg	cgagcgggat	cagctcactc	aaaggcggtg	atacgggtat	ccacagaatc	9660
aggggataac	gcaggaaaga	acatgtgagc	aaaaggccag	caaaaggcca	ggaaccgtaa	9720
aaaggccgcg	ttgctggcgt	ttttccatag	gctccgcccc	cctgacgagc	atcacaaaaa	9780

tcgacgctca	agtcagaggt	ggcgaaaccc	gacaggacta	taaagatacc	aggcggtttcc	9840
ccctggaagc	tccctcgtgc	gctctcctgt	tccgaccctg	ccgcttaccg	gatacctgtc	9900
cgcttttctc	ccttcgggaa	gcgtggcgct	ttctcatagc	tcacgctgta	ggtatctcag	9960
ttcgggtgtag	gtcgttcgct	ccaagctggg	ctgtgtgcac	gaaccccccg	ttcagcccga	10020
ccgctgcgcc	ttatccggtg	actatcgtct	tgagtccaac	ccggtgaagac	acgacttatac	10080
gccactggca	gcagccactg	gtaacaggat	tagcagagcg	aggtatgtag	gcggtgctac	10140
agagttcttg	aagtgggtggc	ctaactacgg	ctacactaga	aggacagtat	ttggtatctg	10200
cgctctgctg	aagccagtta	ccttcggaaa	aagagttggg	agctcttgat	ccggcaaaaa	10260
aaccaccgct	ggtagcgggtg	gtttttttgt	ttgcaagcag	cagattacgc	gcagaaaaaa	10320
aggatctcaa	gaagatcctt	tgatcttttc	tacggggctc	gacgctcagt	ggaacgaaaa	10380
ctcacgttaa	gggatttttg	tcatgcatga	tatatctccc	aatttggtga	gggcttatta	10440
tgcacgctta	aaaataataa	aagcagactt	gacctgatag	tttggctgtg	agcaattatg	10500
tgcttagtgc	atctaacgct	tgagttaagc	cgcgccgcga	agcggcgtcg	gcttgaacga	10560
atctctagct	agacattatt	tgccgactac	cttggtgatc	tcgcctttca	cgtagtggac	10620
aaattcttcc	aactgatctg	cgcgcgaggc	caagcgatct	tcttcttgct	caagataagc	10680
ctgtctagct	tcaagtatga	cgggctgata	ctgggcccgc	aggcgctcca	ttgcccagtc	10740
ggcagcgaca	tccttcggcg	cgattttgcc	ggttactgcg	ctgtaccaa	tgccgggacaa	10800
cgtaagcact	acatttcgct	catcgccagc	ccagtcgggc	ggcgagttcc	atagcgttaa	10860
ggtttcattt	agcgccctca	atagatcctg	ttcaggaacc	ggatcaaaga	gttcctccgc	10920
cgctggacct	accaaggcaa	cgctatgttc	tcttgctttt	gtcagcaaga	tagccagatc	10980
aatgtcgatc	gtggctggct	cgaagatacc	tgcaagaatg	tcattgctgt	gccattctcc	11040
aaattgcagt	tcgcgcttag	ctggataacg	ccacggaatg	atgtcgtcgt	gcacaacaat	11100
ggtgacttct	acagcgcgga	gaatctcgct	ctctccaggg	gaagccgaag	tttccaaaag	11160
gtcgttgatc	aaagctcgcc	gcgttgtttc	atcaagcctt	acggtcaccg	taaccagcaa	11220
atcaatatca	ctgtgtggct	tcaggccgcc	atccactgcg	gagccgtaca	aatgtacggc	11280
cagcaacgct	ggttcgagat	ggcgctcgat	gacgccaaact	acctctgata	gttgagtcga	11340
tacttcggcg	atcaccgctt	ccccatgat	gtttaacttt	gttttagggc	gactgccttg	11400
ctgcgtaaca	tcgttgctgc	tccataacat	caaacatcga	cccacggcgt	aacgcgcttg	11460
ctgcttgat	gcccgaggca	tagactgtac	ccccaaaaaa	cagtcataac	aagccatgaa	11520
aaccgccact	gcg					11533

<210> 5

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 5

acggatccga gagacagaga gacggagaca aaa

33

<210> 6

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 6

gcggatccaa gcttcactgc ttaaattc

28